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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/607,082

06/25/2003

Jeremy R. Myles

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6537

8791

7590

02/23/2006

BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
12400 WILSHIRE BOULEVARD  
SEVENTH FLOOR  
LOS ANGELES, CA 90025-1030

EXAMINER

KAO, CHIH CHENG G

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

ala

<b>Office Action Summary</b>	<b>Application No.</b> 10/607,082	<b>Applicant(s)</b> MYLES, JEREMY R.	
	<b>Examiner</b> Chih-Cheng Glen Kao	<b>Art Unit</b> 2882	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 9/19/05, 9/22/05, and 10/28/05.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-9, 19, 21-27, 29, 32, 34-40, 42-46, 48-52 and 56-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 19, 21-27, 29, 32, 34-40, 42-46, 48-52 and 56-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/19/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawings were received on 10/28/05. These drawings are acceptable.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 43, 44, 56, and 60 are rejected under 35 U.S.C. 102(e) as being anticipated by Bailey et al. (US Patent Application Publication 2003/0048868).
3. Regarding claims 1, 2, 43, and 44, Bailey et al. discloses a machine readable medium having instructions (fig. 1, #80) and a method comprising receiving a treatment plan of a target volume (paragraph 49, lines 1-5), receiving a fluoroscopy data image of the target volume (paragraph 48), and adjusting automatically the treatment plan (paragraph 53, lines 7-9) based on movement in the fluoroscopy data image (paragraph 48), wherein the adjusting includes adjusting treatment field information to allow for movement in a field (paragraph 41, lines 12-17, and paragraph 51).

4. Regarding claim 56, Bailey et al. discloses a system comprising a gantry (fig. 1, #18) having a radiation source (fig. 1, #22a), a patient support (fig. 1, #60), a radiation detector (fig. 1, #24), wherein said radiation source (fig. 1, #22a) is at a fixed position relative to the gantry (fig. 1, #18) and wherein said system comprises a simulation component (paragraph 37, lines 1-3).

5. Regarding claim 60, Bailey et al. discloses a system comprising a gantry (fig. 1, #18) having a radiation source (fig. 1, #22a), said gantry having an axis of rotation (fig. 1, #16), a patient support (fig. 1, #60), and a radiation detector (fig. 1, #24), wherein a distance from said radiation source (fig. 1, #22a) to said axis of rotation (fig. 1, #16) is fixed.

6. Claims 25, 29, 38, and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Kapatoes et al. (US Patent 6661870).

7. Regarding claims 25 and 38, Kapatoes et al. discloses a medium and method comprising displaying a digital image of a patient based on a treatment plan (col. 5, lines 41-51), providing input associated with the digital image (col. 5, lines 58-62), automatically adjusting the treatment plan based on the input associated with the digital image, and recalculating a treatment plan based on the input associated with the digital image (col. 6, lines 6-15), and necessarily saving the recalculated treatment plan for further processes (col. 6, lines 15-25).

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8. Regarding claims 29 and 42, Kapatoes et al. further discloses wherein the providing includes providing a radiation field input (col. 5, lines 58-62).

9. Claim 57 is rejected under 35 U.S.C. 102(b) as being anticipated by Besson et al. (US Patent 6301325).

Besson et al. discloses a system comprising a gantry (fig. 1, #20) having a radiation source (fig. 1, #10), a patient support (fig. 1, #46), a radiation detector (fig. 1, #44), and means to move the patient support (fig. 1, #58) as the gantry rotates (fig. 1) to maintain a constant distance between the radiation source (fig. 1, #10) and a point (fig. 1, isocenter of gantry) defined in relation to the patient support (fig. 1, #46).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 3 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al. as applied to claims 1 and 43 above, and further in view of Weinberger et al. (US Patent 5764723).

Bailey et al. discloses a method and medium as recited above.

However, Bailey et al. fails to disclose adjusting gating information in a treatment plan.

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Weinberger et al. teaches adjusting gating information (fig. 1, #7) in a treatment plan (title).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method and medium of Bailey et al. with the adjusting of Weinberger et al., since one would be motivated to make such a modification to reduce normal tissue complications (col. 1, lines 63-65) as shown by Weinberger et al.

11. Claims 4 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapatoes et al. in view of Bailey et al.

Kapatoes et al. discloses a system comprising a treatment planning component to generate a treatment plan (abstract, lines 3-5), a component (abstract, lines 5-11), and a third component to adjust the treatment plan (abstract, lines 11-16).

However, Kapatoes et al. fails to disclose a simulation component to simulate an execution of the treatment plan on a patient.

Bailey et al. teaches a simulation component to simulate an execution of the treatment plan on a patient (paragraph 37, lines 1-3).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Kapatoes et al. with the simulation component of Bailey et al., since one would be motivated to make such a modification to reduce error during therapy (paragraphs 16 and 19) as implied from Bailey et al.

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12. Claims 6, 8, 48, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapatoes et al. and Bailey et al. as applied to claims 4 and 46 above, and further in view of Murphy et al. (US Patent 5901199).

Kapatoes et al. as modified above suggests a system as recited above.

However, Kapatoes et al. fails to disclose wherein a treatment plan includes a digitally reconstructive radiograph image, and wherein the digitally reconstructive radiograph image is imported into a system.

Murphy et al. teaches wherein a treatment plan includes a digitally reconstructive radiograph image (abstract, lines 8-9), and wherein the digitally reconstructive radiograph image (fig. 4 and col. 3, lines 24-26) is imported into a system (fig. 3).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Kapatoes et al. as modified above with the treatment plan of Murphy et al., since one would be motivated to make such a modification for making treatment more effective (col. 1, lines 35-38) as implied from Murphy et al.

13. Claims 7 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapatoes et al., Bailey et al., and Murphy et al. as applied to claims 6 and 48 above, and further in view of Jaffray et al. (US Patent Application Publication 2003/0007601).

Kapatoes et al. as modified above suggests a system as recited above.

However, Kapatoes et al. fails to disclose wherein means for simulating generates digital fluoroscopy images of a target volume to confirm a digitally reconstructive radiography image.

Murphy et al. further teaches wherein means for simulating generates fluoroscopy images of a target volume to confirm the digitally reconstructive radiography image (abstract, lines 8-18). Jaffray et al. teaches digital images (abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Kapatoes et al. as modified above with the simulating of Murphy et al., since one would be motivated to make such a modification for making treatment more effective (col. 1, lines 35-38) as implied from Murphy et al.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Kapatoes et al. as modified above with the digital images of Jaffray et al., since one would be motivated to make such a modification to enhance spatial resolution (paragraph 91) as shown by Jaffray et al. for better images.

14. Claims 9 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapatoes et al., Bailey et al., and Murphy et al. as applied to claims 6 and 48 above, and further in view of Frohlich et al.

Kapatoes et al. as modified above suggests a system as recited above. Kapatoes et al. further discloses a computed tomography scanner (fig. 1).

However, Kapatoes et al. fails to disclose a cone-beam scanner.

Frohlich et al. teaches a cone-beam scanner (fig. 2, and col. 5, lines 25-27 and 34-36).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Kapatoes et al. as modified above with the



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cone-beam scanner of Frohlich et al., since one would be motivated to make such a modification for more precise positioning (col. 2, lines 11-14) as implied from Frohlich et al.

15. Claims 19, 21-24, 32, and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frohlich et al. (US Patent 6516046) in view of Setala (US Patent 3466439).

16. Regarding claims 19 and 32, Frohlich et al. discloses a medium and method comprising displaying a digital image of a patient based on a treatment plan (col. 3, lines 20-22), providing input associated with the digital image, and automatically adjusting a radiotherapy simulator system or a treatment plan based on the input associated with the digital image (col. 6, lines 59-65).

However, Frohlich et al. fails to disclose adjusting one or more components of a radiation source and an imager.

Setala teaches adjusting one or more components of a radiation source and an imager (fig. 2, #19, and col. 2, lines 16-20).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Frohlich et al. with the adjusting of Setala, since one would be motivated to make such a modification for not needing to move the patient (col. 1, lines 24-28), which would make the patient more comfortable, and reducing restrictions on irradiation areas (col. 2, lines 12-15) as implied from Setala.

17. Regarding claims 21, 22, 34, and 35, Frohlich et al. further discloses wherein displaying the digital image includes overlaying a simulator digital image and a digitally reconstructed radiograph image (col. 3, lines 19-23) and automatically displaying fields of data based on the digital image (fig. 5).

18. Regarding claims 23 and 36, Frohlich et al. further discloses recalculating the treatment plan based on a corrected digital image (col. 6, line 59-60), and would necessarily save the recalculated treatment plan in order to further send information from a computer to controllers (col. 6, lines 57-65).

19. Regarding claims 24 and 37, Frohlich et al. further discloses providing a radiation field input (col. 3, line 23).

20. Claims 26, 27, 39, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapatoes et al. as applied to claims 25 and 38 above, and further in view of Frohlich et al.

Kapatoes et al. discloses a method and medium as recited above.

However, Kapatoes et al. fails to disclose wherein displaying a digital image includes overlaying a simulator digital image and a digitally reconstructed radiograph image and automatically displaying fields of data based on the digital image.

Frohlich et al. teaches wherein displaying a digital image includes overlaying a simulator digital image and a digitally reconstructed radiograph image (col. 3, lines 19-23) and automatically displaying fields of data based on the digital image (fig. 5).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method and medium of Kapatoes et al. with the displaying of Frohlich et al., since one would be motivated to make such a modification for more exact positioning (col. 1, lines 9-10) as shown by Frohlich et al.

21. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al. in view of Jaffray et al.

Bailey et al. discloses a method comprising the steps of placing a patient (fig. 1, #62) on a patient support (fig. 1, #60), producing an image (fig. 1, #36) of the patient using an imager (fig. 1, #24) while on the patient support (fig. 1, #60), producing a treatment plan (paragraph 43) for placement of a radiation source (paragraph 49, lines 5-8) while the patient (fig. 1, #62) is on the patient support (fig. 1, #60), and treating the patient (fig. 1, #62) according to the treatment plan on the patient support (fig. 1, #60).

However, Bailey et al. fails to disclose a flat panel imager.

Jaffray et al. teaches a flat panel imager (abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Bailey et al. with the imager of Jaffray et al., since one would be motivated to make such a modification to enhance spatial resolution (paragraph 91) as shown by Jaffray et al. for better images.

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22. Claims 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins et al. (US Patent 6535574) in view of Toshiba ("Clinical Performance: Delivering upon the Promise of Multi-slice CT through Proven Performance").

Collins et al. discloses a system comprising a gantry (fig. 1, #210) having a radiation source (fig. 1, #215), a patient support (fig. 1, #230), and a radiation detector (fig. 1, #240), wherein the gantry comprises a single frame, wherein the frame comprises a first elongate portion and a second elongate portion disposed at an angle to one another (fig. 1, #210), and wherein the gantry, the patient support, and the radiation detector are electronically coupled (fig. 2).

However, Collins et al. fails to disclose aluminum casting.

Toshiba teaches aluminum casting (page 3, col. 1, lines 28-31).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Mori et al. with the aluminum casting of Toshiba, since one would be motivated to make such a modification to lengthen the lifetime of components and reduce vibrations (page 3, col. 1) as implied from Toshiba.

### ***Response to Arguments***

23. Applicant's arguments with respect to claims 4, 6-9, 19, 21-27, 29, 32-40, 42, 46, 48-51, and 56-60 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments filed 9/19/05 have been fully considered but they are not persuasive.

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24. Applicant argues that Bailey et al. fails to disclose automatically adjusting a treatment plan. Analogous arguments were made with regards to Frohlich et al. The Examiner disagrees. As implied from Bailey et al., the initial plan for treatment (i.e., a treatment plan) is to treat a patient on a table in an aperture (paragraph 48, lines 1-4). Next, fluoroscopy data image is received (paragraph 48, lines 5-7), to automatically adjust the treatment plan based on movement in the data image (paragraph 48, line 8). Such adjustments include adjusting a patient position or radiotherapy beam so that the beam is appropriately aligned (paragraph 49). Thus, the treatment plan has been adjusted from just treating a patient on a table in an aperture (paragraph 48, lines 1-4) to include adjusting a patient position or radiotherapy beam (paragraph 49). Therefore, Bailey et al. does disclose or suggest automatically adjusting a treatment plan. Similar logic applies to Frohlich et al. as well.

Regarding claim 56, Applicant argues that Bailey et al. fails to disclose a simulation component wherein said radiation source is at a fixed position relative to the gantry. The Examiner disagrees. When the system is shut down, the radiation source is at a fixed position relative to the gantry. Furthermore, even when the source is rotating, the source is still at a fixed position, wherein the fixed position is defined as being the position inside the gantry, as opposed to outside the gantry. Therefore, Bailey et al. does disclose a simulation component wherein said radiation source is at a fixed position relative to the gantry.

Regarding claim 52, in response to Applicant's arguments, the recitation of performing brachytherapy has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does

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not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone.

In conclusion, Applicant's arguments are not persuasive, and the claims remain rejected.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

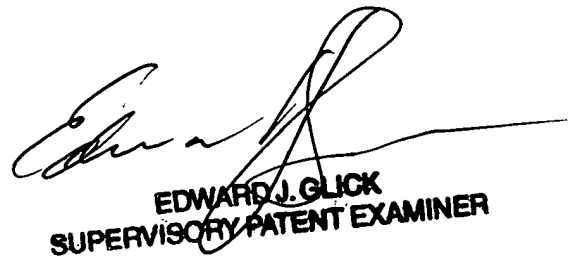
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gk



EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER





REPLACEMENT SHEET

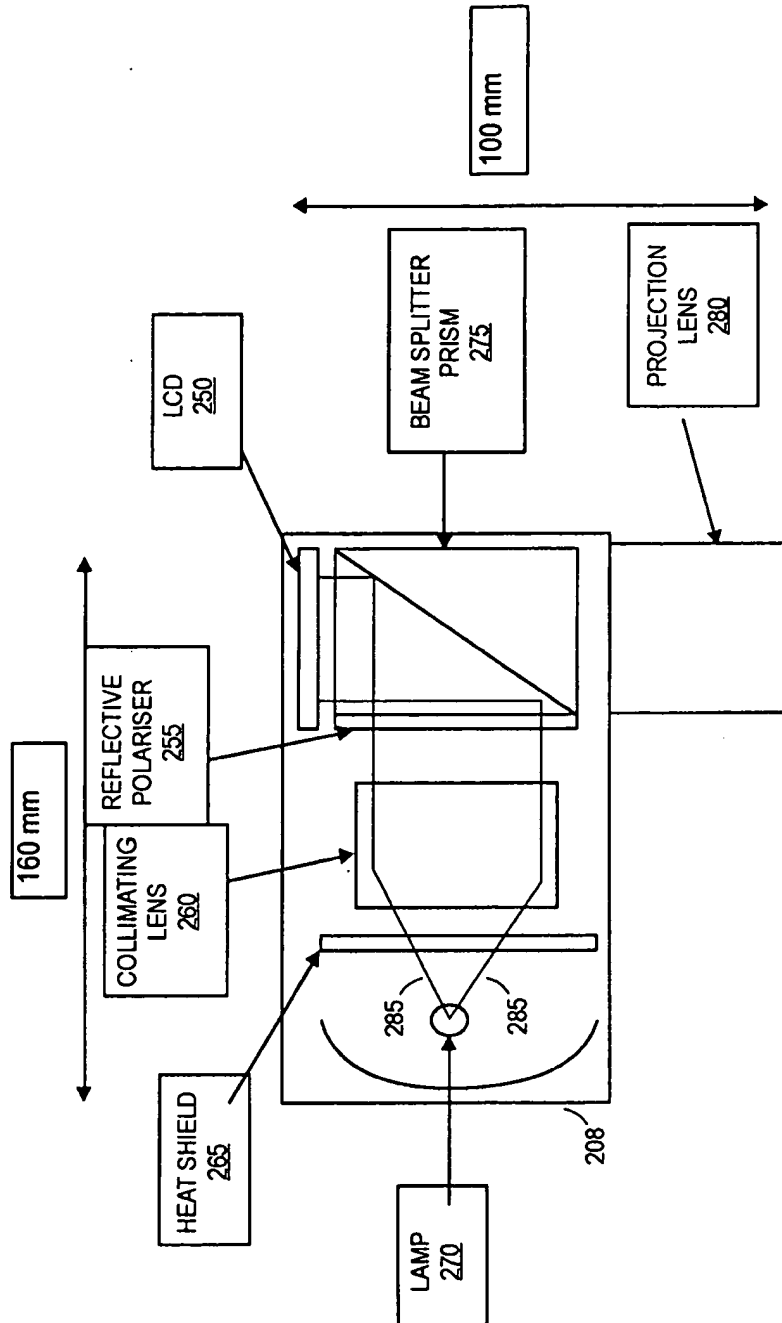


FIG. 1B

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2/16/06

# REPLACEMENT SHEET

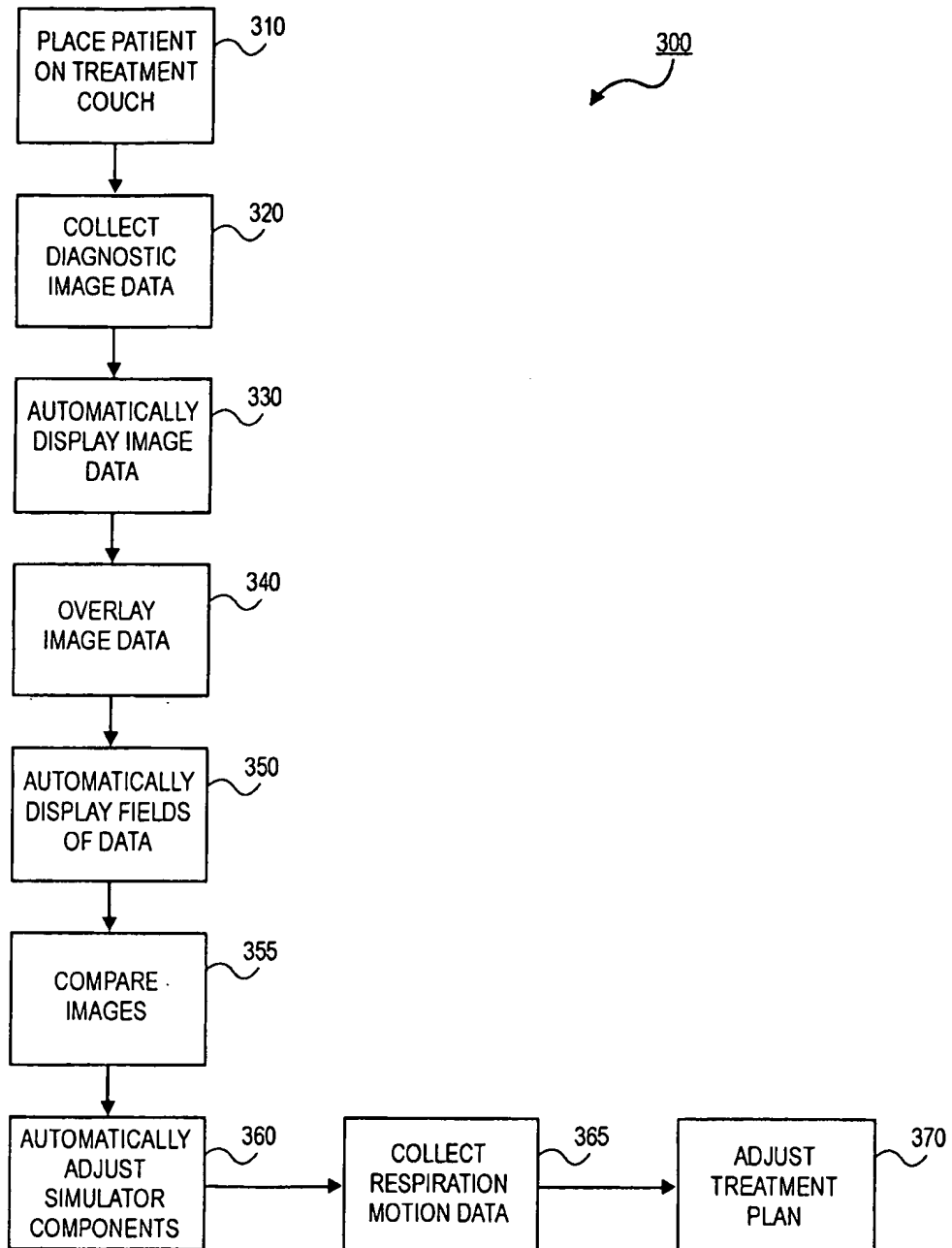
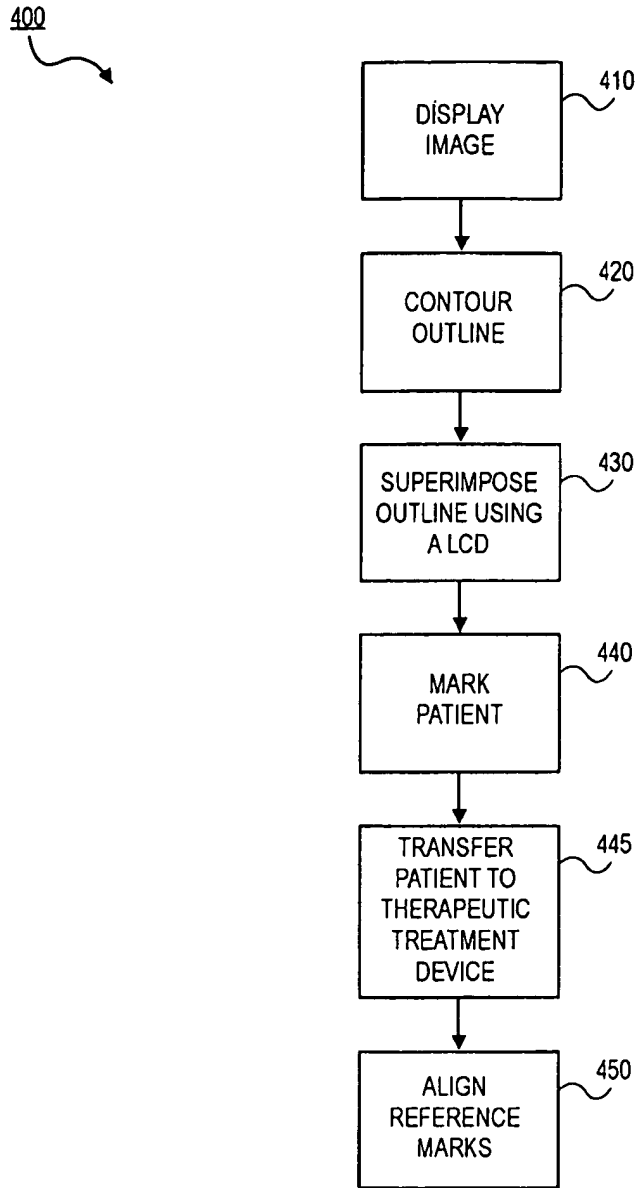


FIG. 2

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# REPLACEMENT SHEET



**FIG. 3**

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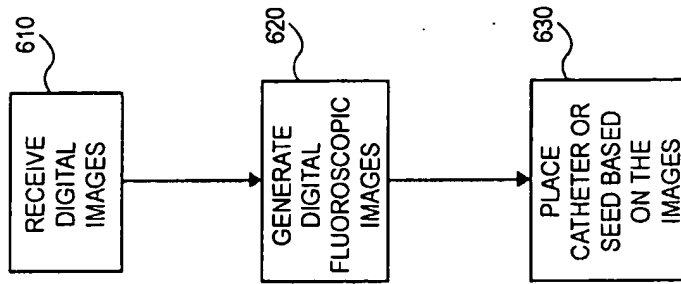


FIG. 5

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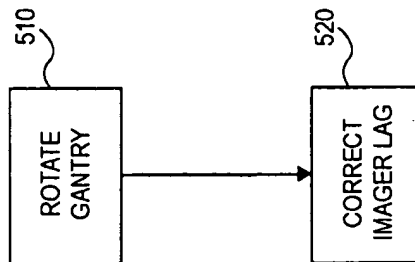


FIG. 4